NMCP COVID-19 Literature Report #18: Tuesday, 02 June 2020

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Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily. Best practice and evidence are constantly shifting during this international public health crisis.

Reports are biweekly, planned for Tuesdays and Fridays.

Statistics

Global 6,306,746 confirmed cases and 376,322 deaths in 188 countries/regions

*United States** top 5 states by cases (Virginia is ranked 12th)

	TOTAL	NY	NJ	IL	CA	MA
Confirmed Cases	1,812,125	371,711	160,918	121,234	114,993	100,805
Tested	17,340,682	2,113,777	795,600	918,273	2,012,583	592,853
Recovered	NA	66,110	26,703	NA	NA	NA
Deaths	105,192	29,917	11,723	5,412	4,220	7,035

*see census.gov for current US Population data; NA: not all data available JHU CSSE as of 1200 EDT Tuesday, 02 June 2020

Navy (Department of Defense)

	TOTAL	MIL	CIV	DEP	CTR
Cases	1,033	831	93	52	57
Hospitalized	9	2	5	0	2
Recovered	2,194	1,645	318	129	102
Deaths	12	1	8	0	3
Cumulative*	3,239	2,477	419	181	162

*cumulative total = active + recovered + deaths DOD dated Monday, 01 June 2020

Virginia	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	46,239	541	212	291	530	325	317	752
Hospitalized	4,770	89	30	41	70	47	52	95
Deaths	1,407	15	3	10	6	11	33	23

VA DOH as of 1200 EDT Tuesday, 02 June 2020

Have a COVID-related topic you want summarized or covered in a future report?
Let me know: tracy.c.shields2.civ@mail.mil

Selected Primary Literature

Recent—published in peer-reviewed journals within the last 7 days of report's date

JAMA: Airborne Spread of SARS-CoV-2 and a Potential Role for Air Disinfection (01 June 2020)

> "Given the ongoing risks of SARS-CoV-2 infection among health care workers, some hospitals are considering deployment of commercially available upper-room GUV air disinfection, although no published studies have demonstrated efficacy and GUV systems are not currently recommended in the infection prevention guidelines from the CDC or the World Health Organization. Upper-room GUV systems must be installed and maintained following evidence-based guidelines. Priority areas for air disinfection might be waiting rooms, emergency departments, intensive care units, bronchoscopy and endoscopy rooms, and other sites where aerosol is generated. COVID-19 will not likely be the last pandemic. Management of the current crisis and preparation for future respiratory viral pathogens should include consideration of the use of upper-room GUV to help mitigate airborne transmission."

Lancet: Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis (01 June 2020)

> "We did a systematic review of 172 observational studies in health-care and non-health-care settings across 16 countries and six continents; 44 comparative studies were included in a meta-analysis, including 25 697 patients with COVID-19, SARS, or MERS. Our findings are, to the best of our knowledge, the first to rapidly synthesise all direct information on COVID-19 and, therefore, provide the best available evidence to inform optimum use of three common and simple interventions to help reduce the rate of infection and inform non-pharmaceutical interventions, including pandemic mitigation in non-health-care settings. Physical distancing of 1 m or more was associated with a much lower risk of infection, as was use of face masks (including N95 respirators or similar and surgical or similar masks [eg, 12–16-layer cotton or gauze masks]) and eye protection (eg, goggles or face shields). Added benefits are likely with even larger physical distances (eg, 2 m or more based on modelling) and might be present with N95 or similar respirators versus medical masks or similar. Across 24 studies in health-care and non-health-care settings of contextual factors to consider when formulating recommendations, most stakeholders found these personal protection strategies acceptable, feasible, and reassuring but noted harms and contextual challenges, including frequent discomfort and facial skin breakdown, high resource use linked with the potential to decrease equity, increased difficulty

communicating clearly, and perceived reduced empathy of care providers by those they were caring for."

"In view of inconsistent guidelines by various organisations based on limited information, our findings provide some clarification and have implications for multiple stakeholders. The risk for infection is highly dependent on distance to the individual infected and the type of face mask and eye protection worn. From a policy and public health perspective, current policies of at least 1 m physical distancing seem to be strongly associated with a large protective effect, and distances of 2 m could be more effective. These data could also facilitate harmonisation of the definition of exposed (eg, within 2 m), which has implications for contact tracing. The quantitative estimates provided here should inform disease-modelling studies, which are important for planning pandemic response efforts. Policy makers around the world should strive to promptly and adequately address equity implications for groups with currently limited access to face masks and eye protection. For health-care workers and administrators, our findings suggest that N95 respirators might be more strongly associated with protection from viral transmission than surgical masks. Both N95 and surgical masks have a stronger association with protection compared with single-layer masks. Eye protection might also add substantial protection. For the general public, evidence shows that physical distancing of more than 1 m is highly effective and that face masks are associated with protection, even in non-health-care settings, with either disposable surgical masks or reusable 12–16-layer cotton ones, although much of this evidence was on mask use within households and among contacts of cases. Eye protection is typically underconsidered and can be effective in community settings. However, no intervention, even when properly used, was associated with complete protection from infection. Other basic measures (eg, hand hygiene) are still needed in addition to physical distancing and use of face masks and eye protection."

BMJ: Characterization and clinical course of 1000 patients with coronavirus disease 2019 in New York: retrospective case series (29 May 2020)

"*What is already known on this topic*

- Coronavirus disease 2019 (covid-19) is a global pandemic, with New York City a new epicenter of the disease
- The high burden of disease has quickly exceeded the standard capacity of hospital systems and has raised concerns about optimal clinical management, safe maximization of hospital throughput, and resource allocation
- Frontline healthcare providers have limited data to help anticipate the clinical course of these patients and how they compare with previous international cohorts

What this study adds

- Patients with covid-19 who required mechanical ventilation had a bimodal distribution in time to intubation from symptom onset, with most first intubated within 14 days
- Patients in hospital, particularly those in intensive care units, had more comorbidities, longer intubations, and higher rates of acute kidney injury and inpatient dialysis than previous international cohorts
- These findings might help inform frontline providers and provide anticipatory guidance for the international community during this pandemic"

JAMA Netw Open: Venous Thrombosis Among Critically Ill Patients With Coronavirus Disease 2019 (COVID-19) (29 May 2020)

> "Mortality of patients with COVID-19 admitted to ICUs has been reported to be high, at 50%. Frequent venous and arterial thrombotic events have been reported, with rates from 27% to 69% of peripheral venous thromboembolism and up to 23% of pulmonary embolism. The occurrence of pulmonary embolism might be favored by deep vein thrombosis. The main limitations of this study were its monocentric nature and the relatively small size of our cohort. In view of the high rate (ie, 79%) of deep vein thrombosis reported in this study, prognosis might be improved with early detection and a prompt start of anticoagulant therapy. Despite anticoagulant prophylaxis, 15% of our patients developed deep vein thrombosis only 2 days after ICU admission. Systematic anticoagulant therapy for all ICU patients with COVID-19 should be assessed."

JAMA Neurology: Neuropathogenesis and Neurologic Manifestations of the Coronaviruses in the Age of Coronavirus Disease 2019: A Review (29 May 2020)

> "Recognition and understanding of the range of neurological disorders associated with COVID-19 may lead to improved clinical outcomes and better treatment algorithms. Further neuropathological studies will be crucial to understanding the pathogenesis of the disease in the central nervous system, and longitudinal neurologic and cognitive assessment of individuals after recovery from COVID-19 will be crucial to understand the natural history of COVID-19 in the central nervous system and monitor for any long-term neurologic sequelae."

Lancet: Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study (29 May 2020)

> "This international, observational, cohort study provides cross-specialty, patient-level outcomes data for patients who had surgery and acquired perioperative SARS-CoV-2 infection. 1128 patients were included across 24 countries. Overall 30-day mortality was 23.8% (268 of 1128 patients). Pulmonary complications occurred in 577 (51.2%) patients; these patients accounted for 82.6% (219 of 265) of all deaths. Independent risk factors for

mortality were male sex, age 70 years or older, American Society of Anesthesiologists grades 3–5, surgery for malignant disease, emergency surgery, and major surgery."

"Postoperative pulmonary complications occur in half of patients with perioperative SARS-CoV-2 infection and are associated with high mortality. These pulmonary complication and mortality rates are greater than those reported for even the highest-risk patients before the pandemic. Thresholds for surgery during the SARS-CoV-2 pandemic should be higher than during normal practice; men aged 70 years and older who have emergency or major elective surgery are at particularly high risk of mortality. Consideration should be given for postponing non-critical procedures and promoting non-operative treatment to delay or avoid the need for surgery. When hospitals recommence routine surgery, this will be in hospital environments that remain exposed to SARS-CoV-2, so strategies should be developed to reduce in-hospital SARS-CoV-2 transmission and mitigate the risk of postoperative complications."

MMWR: Evidence for Limited Early Spread of COVID-19 Within the United States, January–February 2020 (29 May 2020)

"Four separate lines of evidence (syndromic surveillance, virus surveillance, phylogenetic analysis, and retrospectively identified cases) suggest that limited U.S. community transmission likely began in late January or early February 2020, after a single importation from China, followed by multiple importations from Europe. Until late February, COVID-19 incidence was too low to be detected by emergency department syndromic surveillance for COVID-19–like illness."

Science: Introductions and early spread of SARS-CoV-2 in the New York City area (29 May 2020)

"New York City (NYC) has emerged as one of the epicenters of the current SARS-CoV-2 pandemic. To identify the early transmission events underlying the rapid spread of the virus in the NYC metropolitan area, we sequenced the virus causing COVID-19 in patients seeking care at the Mount Sinai Health System. Phylogenetic analysis of 84 distinct SARS-CoV2 genomes indicates multiple, independent but isolated introductions mainly from Europe and other parts of the United States. Moreover, we find evidence for community transmission of SARS-CoV-2 as suggested by clusters of related viruses found in patients living in different neighborhoods of the city."

Lancet Respir Med: Pulmonary and cardiac pathology in African American patients with COVID-19: an autopsy series from New Orleans (27 May 2020)

"Patients were men and women aged 44–78 years. All were identified as African American by family or self-identification in the hospital demographic record. All patients had at least one comorbidity, the most common of which were hypertension, controlled by medication, type 2 diabetes, and obesity (for full patient characteristics, see appendix pp 2–4). Only one patient was known to be immunosuppressed."

"In all patients, the clinical course consisted of approximately 3–7 days of mild cough and fever of 38·3–38·8°C, with sudden respiratory decompensation just before arrival to the emergency department, or sudden collapse at home (appendix pp 2–4). Chest x-rays, where available, revealed bilateral ground-glass opacities, consistent with acute respiratory distress syndrome (ARDS), that worsened over the hospital course. Patients reporting to the emergency department were intubated and admitted to the intensive care unit (ICU). One patient (appendix, patient 6) on presentation to the emergency department had hypoxic respiratory failure and developed ventricular tachycardia, leading to death before receiving ventilator support. All the patients tested positive for SARS-CoV-2 (by SARS-CoV-2 RT-PCR). Treatment in the ICU initially included vancomycin, azithromycin, and cefepime for all patients, with one patient receiving dexamethasone, and two patients later receiving hydroxychloroquine (appendix pp 2–4). Notable laboratory findings were the frequent development of elevated ferritin and fibrinogen, but with minimal prolongation of prothrombin time, and no elevation of partial thromboplastin time (appendix p 5). Within 24 h of death, an increased neutrophil count with relative lymphopenia was observed in some patients (appendix p 5). Glucose and creatinine concentrations increased above baseline in all but two patients, and aspartate aminotransferase concentrations became slightly elevated in four patients. D-dimer concentrations taken near the time of death were markedly elevated in all patients when this was measured (n=6, range 249–47 559 ng/mL; appendix p 5). Detailed laboratory findings from all patients are included in the appendix (p 5). When the patients continued to deteriorate despite support, the families chose to withdraw care. Consent for autopsy without restriction was given by the next of kin, and the studies within this report were determined to be exempt from oversight by the Institutional Review Board at Louisiana State University Health Sciences Center and Tulane University."

Preprints—not yet peer-reviewed papers

*bioRxiv and *medRxiv are preprint servers: "[T]hese are preliminary reports that have not been peer-reviewed. They should not be regarded as conclusive, guide clinical practice/health-related behavior, or be reported in news media as established information."

medRxiv: Seroprevalence of SARS-CoV-2 among children visiting a hospital during the initial Seattle outbreak (28 May 2020)

"Children are strikingly underrepresented in COVID-19 case counts. In the United States, children represent 22% of the population but only 1.7% of confirmed SARS-CoV-2 cases. One possibility is that symptom-based viral testing is less likely to identify infected children, since they often experience milder disease than adults. To better assess the frequency of pediatric SARS-CoV-2 infection, we serologically screened 1,775 residual samples from Seattle Children's Hospital collected from 1,076 children seeking medical care during March and April of 2020. Only one child was seropositive in March, but nine were seropositive in April for a period seroprevalence of >1%. Most seropositive children (8/10) were not suspected of having had COVID-19. The sera of most seropositive children had neutralizing

activity, including one that neutralized at a dilution >1:18,000. Therefore, among children seeking medical care, the frequency of SARS-CoV-2 infection increased markedly during the early Seattle outbreak despite few positive viral tests."

Podcast / Video

TOPIC: Ethics Talk: Antiracism, Health Equity, and a Post-COVID Future

DETAILS: In this video edition of Ethics Talk, journal editor in chief, Dr Audiey Kao, talks with Dr Ibram Kendi about the impact of racist policies on historically discriminated-against groups and what it means to be an antiracist.

WATCH: https://journalofethics.ama-assn.org/podcast/ethics-talk-antiracism-health-equity-and-post-covid-future

For more resources like this, see the COVID-19 Ethics Resource Center from the AMA Journal of Ethics. The collection includes podcasts, videos, and articles aimed to "promote ethical reflection and decision making during this pandemic."

PubMed: New Look, New Way Linking to Full Text, New Features (And New Headaches)

If you haven't looked at PubMed in a while, you may be in for a surprise. Last week, PubMed switched to its new default interface, which has new features, a different look, and changes how keyword searches are translated and presented.

The biggest difference most users will notice is the Best Match default sort, which is based on an evolving algorithm that attempts for work like Google Scholar's relevance sort. There are some growing pains with it though; until some of those issues are worked out, I would highly recommend changing the sort from Best Match to Most Recent. You can do this by clicking on the Display Options at the top right of the results page.

Use this link for new PubMed to see NMCP Library Services' "check for full text access" buttons: https://pubmed.ncbi.nlm.nih.gov/?otool=vanmcplib

If you aren't quite ready to make the switch, legacy (aka 'old') PubMed is still available at https://pmlegacy.ncbi.nlm.nih.gov/pubmed, but it won't be around for long.

Library Services offers training classes for individuals, groups, and departments in using PubMed and other information sources. Contact us for help: usn.hampton-roads.navhospporsva.list.nmcp-library@mail.mil

In Brief

In a press conference on late Friday, President Trump announced that the United States will be "terminating our relationship with the World Health Organization and redirecting those funds to other worldwide and deserving urgent global public health needs" (NPR).

The administration's coronavirus testing czar, Admiral Brett Giroir, has said he's been "demobilized" and will be leaving the position in mid-June (NPR).

Public Health Crises

The COVID-19 pandemic is not the only public health crisis happening right now (Vox).

Yes, racism is a public health issue—and a barrier to health equity (APHA).

"Across the country, mayors, public health experts and other officials worry that even though many protesters are wearing masks, the risk of new coronavirus cases will increase as thousands gather" (NYT).

A second Ebola outbreak has emerged in northwest Democratic Republic of the Congo. Six cases have been identified; 4 people have died. This outbreak appears to be unrelated to the 2018 outbreak in the same area. (WHO; Hill).

Vaccines and Treatments

Eli Lilly begins human trials of a new human-made antibody medication for COVID-19 (STAT).

Gilead is developing an inhaled and other easier-to-administer versions of remdesivir (Reuters).

The DOD is collecting 8,000 units of convalescent plasma from COVID-19 donors (DOD).

A recent GAO report discusses vaccine development—the traditional timeline and the accelerated timeline for COVID-19; there are more than 110 vaccines in development around the world and at least 3 in the US receiving federal funding (GAO).

Internal FDA documents suggest there was little evidence to support the agency's emergency use authorization (EUA) of the malaria drugs chloroquine and hydroxychloroquine and was done under political pressure; the EUA and other concerns led to Rick Bright filing a whistleblower complaint in May (BuzzFeed).

Ripple Effects

The COVID Racial Data Tracker provides data on racial and demographic differences with the coronavirus and context for healthcare disparities, broken down by state using available reported data (COVID RDT).

Domestic abuse may escalate during the pandemic, and continue even if you get a away (NPR).

People who recover from the coronavirus may have long-term disabilities (WashPo).

For more on information on ripple effects, see: NMCP COVID-19 report #13 summary on healthcare disparities (SharePoint); report #14 summary on home- based violence and abuse (SharePoint); and report #15 on the potential long-term effects of SARS-CoV-2 infection / COVID-19 disease (SharePoint).

Mental Health, Wellness, & Resilience

The trauma of the pandemic can inspire personal growth (WashPo).

The next big coronavirus challenge will be flattening the mental health curve (Conversation).

Climate, Weather, and COVID

It's June, which means hurricane season is here—communities are bracing for the potential dual emergencies with natural disasters and the pandemic (NPR).

The COVID-19 pandemic could stop measures and programs to mitigate climate change from moving forward (NYT).

Animals

There are increased demands for research on whether animals can catch the coronavirus and pass it to humans (Nature).

Keep in mind, we still don't know the animal source of the virus (Nature).

(Mis-/Dis-)Information

Translating COVID-19 information—for researchers or for patients—into all the necessary languages is a huge challenge with the pandemic (Wired).

Speaking of translations, the discredited 'Plandemic' video has been translated into more than a dozen languages and has spread across the non-English-speaking world (BuzzFeed).

Using secure identification, people in Estonia can bank, apply for government assistance, file for sick leave, order prescriptions, and get medical care—all online. Why can't we do that in the United States? (Atlantic)

Long Reads

"Monster or Machine? A Profile of the Coronavirus at 6 Months" (NYT)

"The Secret, Absurd World of Coronavirus Mask Traders and Middlemen Trying To Get Rich Off Government Money" (ProPublica)

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Statistics

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In Brief

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